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THE SOUTHERN PLANTER,

Devoted to Agriculture, Horticulture, and the Household Arts.

Agriculture is the nursing mother of the Arts.—*Xenophon.*

Tillage and Pasturage are the two breasts of the State.—*Sully.*

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VIRGINIA SHEEP.

The "signs of the times" all point to the business of sheep raising as one that is shortly to become *the* business of the farmer in Middle and Western Virginia, and a good sheep walk is, even now more valuable than a tobacco lot. Col. Ware, of Jefferson, has long been known to us as one of the most judicious and enterprising breeders in any portion of the Union, and we are pleased to see from the following article, which we find in the "Charlestown Free Press," that his well directed efforts to improve his flock of sheep have been attended with such eminent success. From a private source we learn that Col. Ware could have sold his whole flock to the butcher for the shambles, at ten dollars a head, a price, we imagine, altogether unprecedented in this country. His breeding ram, we are told, without having ever been fed, weighed, at sixteen months old, two hundred and thirty-five pounds. There surely can be no reason for a Virginian's sending to the North, or to Europe, for stock sheep, as long as he can be supplied on moderate terms, *at home* with such sheep as these. The following is the article to which we referred:

Col. Josiah W. Ware, of Clarke county, has given much of his attention for a few years past, to raising and improving the quality of sheep. He has now on his farm a large stock of the Cotswold breed, which are highly prized, both on account of the fine fleeces they afford, and the delightful quality of mutton when slaughtered. We recently copied an article from the Winchester Republican noticing a sale Colonel W. made to Mr. Jacob Pittman, who was stocking his farm in Augusta, and another sale to Mr. Philip Otterback, for the Washington City market. Mr. O. is, perhaps, as good a judge of fine mutton as there is in the country, inasmuch as he has been engaged in slaughtering for many years, and has quite a reputation for his judgment in making selections for his stalls. The high compliment he pays Col. Ware in his advertisement of the stock, is one that is richly merited and freely given.

The following article from the Winchester Republican is published in connexion with a statement from Mr. Otterback, of the Washington market, who fully sustains the views expressed in reference to the quality of Col. W.'s sheep:

"FINE SHEEP.—We have seen different notices in Northern and other papers, of fine breeds of sheep, but we think we can name some in our neighborhood scarcely to be excelled any where.

"Col. Josiah W. Ware, of Clarke county, near Berryville, has given some attention to this subject, and has supplied himself with sheep which will bear a comparison with any in the country, and from which he has raised his now superior stock.—His stock are of the Cotswold breeds and

are the finest we ever saw, whether we consider their fleece or the quality of the mutton. Col. Ware sold, this fall, a lot of thirty wethers to Mr. Otterback, of the Washington market—half of them only yearlings, the other half two years old—for three hundred dollars, being ten dollars each. None of them had ever been fed on grain, and this proves that the sheep are of a quality which can be brought to perfection with only the ordinary treatment by judicious crosses.

"We saw yesterday a lot of nine of these sheep, purchased by Mr. Jacob Pittman, of this county, who is taking them to his new residence in Augusta. Most of them were yearlings, and one of them a lamb of this spring. They are not thorough bred, but are a superior lot, and, to our eye, the most extraordinary we have ever noticed. The buck (two years old) is thorough bred, and has obtained what may be termed perfection of form. We were struck with the length of the wool of a yearling ewe that had been unsheared in the spring, being a very late lamb. Some of this wool (clipped) is fourteen inches in length at least, a specimen of which we have now before us.

"We recollect of eating some of this mutton two or three years ago at the table of Colonel Ware, which other gentlemen must well remember, from its extraordinary, and, we may justly add, unsurpassed quality. That the same success will attend the efforts of others in the rearing of fine sheep only require the same care and attention that Colonel Ware bestows upon his. Indeed, no farmer, who takes a just pride in the production of his farm, would be without a portion of this stock. There is nothing of exaggeration in this statement our readers may be assured, for we are far from being apt in description of this sort."

The following is the advertisement of Mr. Otterback, which we find in the National Intelligencer and Baltimore Sun:

"Notice to my Customers and Lovers of Good Mutton.—Colonel Josiah W. Ware, of Clarke county, Virginia, deserves great credit for his fine stock of sheep. I have seen a great many in England, and have handled and killed good many thousands in this country, but I have never seen any better yet, according to their age and quantity. He has now on hand from seventy to one hundred head of ewes. The country cannot produce better. I shall have (during this winter) the finest and best mutton that has ever been exhibited in our market, or any where else in the United States, according to the number. I have purchased several lots of as good graziers as any in the country, which reside in Clarke county, (Virginia.) A lot of thirty head, of Col. Josiah W. Ware, I dare the country to beat. This stock of sheep is said to be of the Cotswold breed.

Philip Otterback.

"N. B.—Notice will be given when I shall have them in market. P. O.

Washington, Nov. 16, 1846."

Colonel Ware has shown us part of a fleece taken from a seven months' and yearling sheep, which, for length of wool, is far beyond that of the ordinary wool of sheep raised in this region. It is fine in texture, and has quite a rich gloss, and when manufactured into goods, it will vie with any goods that may be imported, in point of fineness and durability.

From the Cultivator.

CULTIVATIGN OF SWEEDISH TURNIPS.

We have been furnished with the following letter in reply to a request from the Hon. A. Stevenson, of Virginia, for information in relation to the culture of the Swedish turnip, or ruta baga:

Albany, Dec. 15, 1846.

Hon. A. Stevenson: Dear Sir,—It is with much pleasure I answer your inquiries on the cultivation of the Swedish turnip. I regret my inability of description; but shall be happy to disclose to you my mode of culture by which I usually obtain success.

I regard the turnip crop as one of the most important to the English farmer, and believe it to be equally as productive here

as in Britain, under the same careful culture.

In England, the turnip is the renovator, and the farmer's best friend; light soils would be utterly useless and impoverished, were they not aided by this valuable root. England has the advantage over America, as to climate, which will there admit of turnips being fed off on the land, and the treading of the sheep in winter is a very great advantage to a porous soil, which is peculiarly adapted to the bulbous tribe of vegetables. Turnips can be grown to advantage on any kind of soil, except a stiff clay; in such a soil the roots cannot penetrate, the fibres cannot search for food to feed the plant, unless the soil is kept soft by continual moisture; but sand, gravel, loam, or stony soil, are best adapted to turnips, and are the most kind and grateful to them. My mode in this country, by which I have been remarkably successful, is as follows:

The first crop of eight acres I sowed on the river flats, a stiff loam, which was yearly overflown in the spring. I could not prepare the land according to the system I pursued in England previous to sowing. I could only plough it once, before the manure was put on, and then ploughed it in. The weeds sprang up with the plants, and it required an immense amount of labor to keep them from choking them. Notwithstanding this, I kept the weeds down sufficiently to keep the turnips above them, and they flourished beyond my expectations. The compost I applied was so *agreeable to their taste*, that they fed upon it, and thrived exceedingly. It was a mixture of barn yard manure, the refuse of slaughter yards where thousands of cattle had been slaughtered, drawn into a mine or pile in the winter, and all turned over, and mixed well together in the latter end of March. Give me such compost as this, so far decayed as to cut out with a shovel, and I shall never fear of obtaining a crop, unless the season is excessively dry. Such a composition very soon dissolves, and forces the plant in its early stage out of the way of the fly.

This crop was sown broadcast at four different periods; the first, the early part of June, (say the first week;) the second, ten days later, and so continued until the whole crop was sown. The object of the different sowings, was to take advantage in hoeing; as soon as the first was finished, the second was ready to commence, and when the last hoeing was completed, the first needed a second hoeing; and when at the end again, they were safe from the weeds, and required nothing more doing to, until pulled and put into the cellar.

I cut the tops as I pulled them, and drew them into the poorest part of the pastures; the cattle eat them with avidity, and left their manure in the place it was wanted. This crop, as near as I could "*guess*," averaged about twenty tons to the acre. The second crop was on a similar soil about the same number of acres, and one-half of it under different treatment. Part of this lot was what is here called *old meadow*, but it was a complete mass of couch grass. I had some breast ploughs made, pared off the sod and burnt it, and the quantity of ashes exceeded any thing I ever saw in England, under the process of "*paring and burning*," so generally practised there for a turnip crop. The ashes were all the manure applied, and although sown later than those to which the compost was applied, did not incur one-quarter of the expense in hoeing, the weeds having been previously destroyed by burning.

The crop was equally as good as the former. I drew these tops on the pastures as before. I "*guessed*," this crop as averaging twenty-five tons per acre.—The third crop was a field of about twelve acres, of old pasture, and like the previous one, a bed of couch grass. Part of this field was a dark sand, and the other part a lighter sand, either of them an excellent soil for turnips. The whole of this field was breast ploughed, and produced only about half as many ashes as the former one; therefore, I added a slight dressing of compost; and, although a very dry season, I should say the average was certainly twenty-five tons to the acre. If the season had been favorable, the weight of produce would have been most extraordi-

nary. In August and September, the leaves were all dried up and withered.—A heavy rain came early in October, and they grew with exceeding rapidity; if they had had six weeks more to have grown in, as they would have done in England, they would have surpassed any crop I ever saw grow there. The fourth crop was a similar soil to the latter, but had been miserably impoverished; the previous crop was a mixture of Canada thistles, weeds, and a *small* portion of barley, not sufficient to pay the expense of harvesting. To this crop was applied the same quantity of compost as the first crop. The dry weather in August and September very much affected their growth, the tops became mildewed, but I think they were equal to any previous crop, and would have compared with the best crops in England. They generally grow there until Christmas, and sometimes the middle of January. I should say that your climate in Virginia possesses advantages in this respect over a northern clime; and I am strongly inclined to believe, they would stand the frost the whole of the winter; if so, the tops in the spring will produce you very early food for ewes and lambs, and enable you to send early lambs to market.

These statements of crops, are somewhat like "*guess works*," as respects the weight per acre. I judged from the number of loads drawn, having weighed a bushel basketful, and measured the wagon box with the basket. This gave me the impression at the time of the amount of produce.

The true way to grow Swedes is this. Plough your land as soon as the grain crop is off; then all the pernicious seeds exposed to the atmosphere will vegetate. Let them grow for a month, then plough again, and turn them under; the seeds on the surface will again spring up, and the winter will destroy them. The more you stir your land, so much the more you make your weeds grow, by bringing those seeds that have been lying dormant, to the surface, which when once sprouted are thus destroyed, leaving your land free from refuse and weeds, to receive the crop you intend to grow upon it, and which saves you more than half in hoeing.

By a continuation of this system, and sowing clear seed grain, you keep your land free from weeds, which I consider a very prominent item, not only in the expense of labor, but in the unprofitable exhaustion of the soil. By letting your various kinds of manure decay in the compost heap, and mixing them well together, you destroy all injurious weeds therein contained, and you get a greater benefit from it in the early part of the season, when the plants require forcing to shade the ground with their leaves.

My object in sowing broadcast, is to put enough seed on the ground, so that the fly may feed on a part of them and then leave enough for a crop. A man who understands hoeing turnips broadcast, can do as much in a day as he can in the drill, and I never want to see a horse amongst them. If the land is well pulverized, and reasonably free from weeds, a man can hoe the first time, half an acre per day. The second time he can do more, but to effect this he must do it while the plants and weeds are young; the sooner after the second rough leaf appears, the better.

There are but very few good turnip hoes; most men are afraid to exercise their hoe freely, leaving them much too thick, and do not bear sufficiently hard upon it to go to the bottom of the roots of the weeds, which take root again and grow as rapidly as ever. I generally leave them from eighteen inches to two feet apart, and think I can obtain a greater weight by the latter space than the former. Great care must be taken to leave the plants singly. An experienced hoer will seldom have to put his hand to a plant unless they are very thick; they are principally drawn by the corner of the hoe made for that purpose.

I put the roots in a long celler, the whole length of the stable, about fifteen feet wide, ninety feet long, and ten feet high, putting a slight covering of straw on the top. In this way they have kept well the whole of the winter, and until the middle of May, sometimes sprouting

in midwinter. I cut them for my young stock, and feed them whole to those whose teeth are well settled; about a half a bushel per day to the latter, and less to the former.

I am, dear sir,
Your obedient servant,
W. H. SOTHAM.

MILLSTONES.

Herschel, in his discourse on the study of Natural History, states that the following process is used in some parts of France where millstones are made. When a mass of stone sufficiently large is found, it is cut into a cylinder several feet high and the question then arises how to subdivide this into horizontal pieces so as to make as many millstones. For this purpose horizontal indentations or grooves are chiselled out quite round the cylinder, at distances corresponding to the thickness intended to be given to the millstones, into which wedges of wood are driven. These are then wetted or exposed to the night dew, and next morning the different pieces are found separated from each other by the expansion of the wood, consequent on its absorption of moisture.

HORTICULTURE.

There is no acre upon the farm that pays so well as a highly cultivated garden. The following essay upon Horticulture was addressed to the Newberry Agricultural Society by Mr. M. Hall, of South Carolina. It contains practical information in a condensed form that will be very useful to young beginners. It should be remembered that the season of that region is about three weeks earlier than our own.

As it has fallen to my lot to offer a few imperfect remarks upon this all-important branch of industry, I shall commence with *onions*, as the seed is the first thing that should be sown in the garden in the fall season. Have your bed well manured with well rotted stable manure; then plough up the bed deep and close; otherwise, spade it up, rake and level the bed. Then take a small sprouting hoe, and open a small trench (or furrow) about one inch deep, and about eighteen inches apart, then drill your seed thin. When done, cover it with a garden rake about half an inch deep. These seed should be sown as early as the month of September or October. The ensuing spring, when the plants are well up, take a sprouting hoe, and cut square across the drill, as though you were thinning cotton the first time. As they grow up, they should be thinned out by degrees, until you have thinned out to one stalk, (or onion.) When they get to be about one inch in diameter, the dirt or earth should be carefully scraped away from them, and be kept free from all weeds and grass. Should any of them incline to go to seed, the buds should be nipped out. By this method you may raise as fine large onions from the seed, as you can from the plants, and of decidedly a better quality. Those who prefer raising onions from the plants, (or as they are commonly termed, seed onions,) should, after preparing their garden as before mentioned, plant them six or seven inches apart, and the rows should be from twenty to twenty-two inches wide. This should be done about the last of December or the first of January. They should be managed in every respect like those which grow from the seed, and as they begin to bud for seed, the bud should be taken out, except such as you wish for seed. After the onions have matured, the top will generally fall down; then they should be dug and let lie two or three days in the sun; they then should be gathered and spread thin on a dirt floor, taking care to examine and pick out those which may rot. Let them have air plenty.

Early cabbage seed should be sown in the first of January, in rich, loose soil. I have often found that burning a brush heap on good, strong, sandy land, answers the purpose extremely well. Then dig up the ground deep with a mattock, or sprouting hoe, rake and level your bed smooth. Then sow your seed, and cover them as shallow as possible. This is the time of year to begin to prepare our gar-

dens. It now should be broken up very deep with a plough. Then cover your beds well with manure from the stable, and break it up again. Where the stable has been well and regularly replenished with leaves, the manure is much the best; and the reason is obvious, because it is not so burning to vegetables. Cabbage plants should be transplanted as early in March as possible. Early York cabbage should be planted two feet apart each way in rows. Drumhead, or Mountain White, should be planted at least three feet apart; as soon as they commence growing, they should be neatly ploughed. This I do by hitching in a strong hand to a small plough stock, with a small scoop (or scooter) on it; they then should be neatly hoed over. The garden should be ploughed and hoed at least every two weeks, and suffer neither weeds, grass nor pursley, to infest your cabbage. For late cabbage, the seed should be sown about the middle of June.

English peas should be planted in January or the first of February, in rows about three and a half feet apart, and in the drill from ten to twelve inches apart. As soon as they are up, plough and hoe them neatly. When they are about six inches high, they should have a stick by the side of every hill. To ensure a good stand, there should be planted four or five peas in every hill, cover them about one inch deep, and when properly up, thin them to two stalks. These peas make a fine show early in the spring, but if we wish to have the benefit of peas, plant the bunch or dwarf pea in the same manner. Attend them well with the plough and hoe, and they will yield more abundantly.

Peppers should be sown on the first of April, in drills. When properly up, thin to stand about ten or twelve inches apart, leaving one or two stalks in a place.

Mustard, for winter use, may be sowed in the latter part of August, or the first of September, in drills, about eighteen inches apart, covered very lightly. The bed on which it is sown, should previously be made very rich. As soon as it is up, thin it out so as to let every plant have three or four inches space between them. For spring use, it may be sown in the same manner in January or February. It should be hoed and kept clean.

Lettuce may be sowed in the last of December, or first of January, in drills twelve or fifteen inches apart. As soon as it takes a good start to grow, thin it out to stand two or three inches apart, minding, as you use it, to keep thinning it regularly; it should also be hoed and kept free from weeds or grass. This bed should also be very rich.

Beets should be sown in February or the first of March, in a rich, sandy soil, in rows, or drills, eighteen inches apart. The seed may be planted in the drills, ten or twelve inches apart, and three or four in a place; after the plants are well up, thin them to one stalk, or plant, and attend well with plough and hoe. After they have arrived to perfection, in the fall they may be banked like potatoes, and preserved all winter. Transplanting of beets does not answer well.

Beans, bush or bunch beans may be planted in the last of March, in a rich, sandy soil, in some part of the garden that will shelter them from the north wind, and give them the sun in the early part of the day. If it should be likely to frost, cover them at night. They may also be planted about the full moon in April, and for a succession of crops on to the 4th of July, or even later. They may be drilled in rows two feet apart, and after they are well up, thin to two stalks, eighteen or twenty inches apart. Stick (or pole) beans may be planted from the middle of April to July in the same manner as the others, except that they should have more distance, say two feet one way and three and a half the other. Have your land well manured, and attend well with plough and hoe. As good seed is of the greatest importance, the stalks you allow to save your seed from, should never a bean be plucked from, till they are perfectly ripe; then gather, shell them out, and dry them properly in the sun, then put them up in a small bag with some tobacco or snuff, and hang them where they can have the air: the tobacco preserves them from the bug in a great measure. The seed should

always be saved from the first beans you plant.

Cucumbers, watermelons, and muskmelons, although they can be raised in a garden, should never be planted there.—The reason is obvious—if a garden is not rich land, it should be made rich; this sends up grass and weeds very fast, and vines, after they get properly to running, should never be interrupted, and it would be impossible to keep them free from grass in a garden without moving them; therefore, select the poorest sandy old field you have, fence in your patch, lay it off with a plough twelve or fifteen feet square, in December; dig a hole in every cross, two feet deep and two feet wide, (or wider,) fill it up as soon as convenient with corn cobs about two-thirds full, and beat them down with a maul or crowbar. Let your holes stand open all winter. In the first of March, fill up the remainder of the hole with manure, (that from a hog pen is best.) Plant from the 1st to the 20th of April; put eight or ten seed in a hill, some of them ten or twelve inches apart. But before you plant your seed, mix some of the earth or sand with your manure on the top of the hill, raise your hill about three or four inches above the level of the earth, for fear of rain settling it below the surface, and drowning your seed or plants. When they are up and have four or five leaves, thin them to two stalks, letting the farthest apart thrifty plants stand. When they commence running, lay them so as to run in different directions, so that one vine will not interfere with another. By the time they begin to run, they should be laid by, having your ground perfectly clean. Generally two ploughings and two hoeings will do them. After they have run three or four feet, they should be confined to the ground with cross sticks, to keep the wind from turning them over, (I mean the watermelon vines.) No sickly or deformed melon should be allowed to set on a vine. If you wish to raise large watermelons, let but one melon set on a vine till it nearly gets its growth; also top your vine. As seed is of the greatest importance, save your seed from those melons or cucumbers, which grow nearest the root of your vine; these are decidedly the best. Vines from these seed will yield more and come earlier.

The above imperfect experience I humbly beg to submit.

MATTHEW HALL.

LIME AND RATS.

A gentleman of this city says the Memphis Appeal, who had occasion to use considerable lime about his premises which had heretofore been much infested with rats, informed us that these destructive little animals had suddenly ceased to appear or to annoy him. "Before using the lime," said he, "you could scarcely walk across the yard after night without treading on them." He showed us several of their principal holes around which he had deposited a small portion of fresh or unslacked lime, which evidently had the effect of driving them from these places, which they had before resorted to in great numbers. The above is a simple and cheap method of getting rid of this annoying and destructive pest; suppose you try it.

From the Union Agriculturist.

A CHEAP ICE HOUSE—A GOOD CELLAR FOR ROOTS.

My Worthy Friend,—You ask for more communications. Now the fact is that my name has become so common in agricultural papers, that I have reason to believe that something new from some new writer, would be much more interesting to readers, and that when they see my name they will exclaim, "what, Monsieur Tonson come again?" and pass over this hackneyed name with the well founded belief that no new thing can come from such an old fountain. But I will once more run that risk.

Many persons are deterred from putting up ice, because they cannot afford to build an ice house. If they will try the following plan, which, by-the-by, is not original,

but has been used in days of "auld lang syne," "down in old Virginia," and proved to be a good thing, they need not be afraid of the expense.

Select a spot upon rising ground where the surface water will run off, and strike a circle twelve feet across, and set a circle of strong stakes about five feet high and one foot apart—saw off the upper ends even and square—set another circle of stakes four feet distant all round, the same height, but they need not be quite so close to one another—leave a space on one side about two feet wide for a door way, and set stakes or nail boards on each side so as to make a passage to the inside space; put strips across the inside space from the tops of the stakes, sufficiently strong to hold up a stack of hay.

Now take prairie hay, or some of the superabundant straw that all Western farmers waste or burn up, "to get it out of the way," and tramp the space between the stakes full and as tight as possible, taking care to raise it a foot or two above the top of the stakes, then make a complete round stack that will shed water, tapered from the outside stakes to the centre. To make a ventilation, nail four boards about five or six inches wide together; let two of them be one foot the longest, and set this box up as a stack pole, and nail a cap on the top of the two long pieces. If this give too much ventilation stuff straw in one end. Hang two tight doors, made to shut upon wooden listing.

This "hay stack ice house," that any farmer can make in two days will keep ice two years. Of course the size may be varied. The ice should not be laid upon the ground, but upon some rails covered with straw—or a bed of straw would be better—a slight ditch should be dug around outside to drain off the water that drips down. With slight repairs it will last years.

Now, besides being a good ice house, it would make one of the cheapest and best winter store houses for turnips, &c., convenient to the cattle yard, that can be contrived when the soil will not admit of making cellars under our buildings. And in all damp climates, cellars under dwellings are a positive nuisance—complete hotbeds of pestilential miasma.

There is one more purpose for which the fabric may be used. Cobbet, who deprecated the use of ice, in speaking of an ice house in his "Cottage Economy," says if you are tired of it for that use, it would make one of the finest nests for young pigs in the winter, that could be contrived.

Now, I do not entirely deprecate the use of ice; but I believe, like all other good things, it is often used to excess—and certainly think that tea, coffee, and milk, are used too much in this country, to say nothing of that other thing that is so often used "to make the water taste better." Strange taste. And if we all drank more cold water and less "warm drink," our health would be decidedly better. Therefore, I think that a cheap plan to make water more palatable, must be advantageous in these cheap times.

SOLON ROBINSON.

Lake C. H., Ia., Dec. 31, 1841.

WALNUTS.

It has been ascertained that the shag bark walnut may be successfully engrafted, and that the engrafted trees are much the surest bearers. It is probable that the hickory, or shag bark, would do well engrafted on the pig nut. If it should, the quantity raised might be greatly increased and the quality much improved. The Maderia nut, which is usually sold at the shops under the name of the English walnut, at twelve and a half to sixteen cents per pound, may be cultivated here without difficulty, and is very productive. In the vicinity of New York there is a tree which has produced in a single year as many as sold in the market for two hundred dollars. We have no doubt that it might be engrafted on the butternut or the walnut with perfect success.

THE SAP OF TREES.

What a curious hallucination is that which supposes the sap of trees to fall, or

settle in winter, into the roots! One would have thought that the notorious difficulty of cramming a quart of water into a pint measure, might have suggested the improbability of such a phenomenon. For it certainly does require a very large amount of credulity to believe that the fluids of the trunk and head of a tree can, by any natural force of compression, be compelled to enter so narrow a lodging as the root. The idea, however, has established itself in some persons' minds, and, we presume, in connexion with that other old vulgar error, that the sap is in rapid motion in the spring time, in the roots of a tree, before it begins to flow in the branches.

We shall assume the word *sap* to signify the fluids, of whatever nature, which are contained in the interior of a tree. In the spring this sap runs out of the trunk, when it is wounded; in the summer, autumn, and winter it does not, unless exceptionably, make its appearance. But in truth, that sap is always in motion, at all seasons and under all circumstances, except in the presence of intense cold.—The difference is, that there is a great deal more of it in the spring, and much less at other seasons.

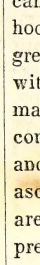
When a tree falls to rest at the approach of winter, its leaves have carried off so much more fluid than the roots have been able to supply, that the whole of the interior is in a state of comparative dryness, and a large portion of that sap which once was fluid, has become solid in consequence of the various chemical changes it has undergone. Between simple evaporation on the one hand, and chemical solicitation on the other, the sap is in the autumn so much diminished in quantity, as to be no longer discoverable by mere incisions. The power that a plant may possess of resisting cold, is in proportion to the completeness of this drying process.

When the leaves have fallen off, the tree is no longer subject to much loss of fluid by perspiration, nor to extensive chemical changes by assimilation, for the leaves are the principal organs of perspiration and assimilation. But the absorbing power of the root is not arrested; they, on the contrary, go on sucking fluid from the soil, and driving it upwards into the system. The effect of this is, that after some months of such an action, that loss of fluid which the tree had sustained in autumn by its leaves, is made good, and the whole fabric of the plant is distended with watery particles. This is a most wise provision, in order to insure abundant food to the new-born leaves and branches, when the warmth and light stimulate them into growth.

During all the winter period, the sap appears indeed to be at rest, for the refilling process is a very gradual one. But M. Biot, many years ago, proved, by an ingenious apparatus, that the rate of motion of sap may be measured at all seasons; and he ascertained it to be in a state of considerable activity in midwinter. Among other things, he found that frost had considerable influence upon the direction in which the sap moves. In mild weather, the sap was constantly rising; but when frost was experienced, the sap flowed back again—a phenomenon which he referred to the contracting influence of cold on the vessels of the trunk and branches, the effect of which was to force the sap downwards into the roots, lying in a warmer medium; then, again, when the frost reached the roots themselves, and began acting on them, the sap was forced back into the trunk; but as soon as a thaw came on, and the ground recovered its heat, the roots out of which a part of the sap had been forced upwards, were again filled by the fluids above them, and the sap was forced to fall. A large poplar tree in the latter state, having been sawed across at the ground line, the surface of the stump was found to be dry, but the end of the trunk itself dripped with sap. Sap, then, is always in motion; and if it ever settles to the roots in a visible manner, that is owing to external temporary causes, the removal of which secures its instant re-ascent.

As to the idea that the bleeding of a tree begins first at the root, and, in connexion with this supposition, that what is called the rise of the sap is the cause of the expansion of buds, and leaves, and

branches, nothing can well be more destitute of any real foundation. If, in the spring, when the buds are just swelling, a tree is cut across at the ground line, no bleeding takes place, neither will the sap flow for some distance upwards, but among the branches the bleeding will be found to have commenced. Let the line A B represent the trunk and branches of a tree; let incisions be made at *c*, *d*, *e*, *f*; the sap will run at *c* first, then at *d*, next at *e*, and last at *f*, next the roots. This was observed some years ago by Mr. Thomson, at that time the Duke of Portland's gardener, who thought that he had discovered that the sap of trees descends in the spring instead of ascending; a strange speculation enough, it must be confessed. The fact is, that the sap is driven into accelerated motion first at the extremities of a tree, because it is there that light and warmth first *tell* upon the excitable buds. The moment the buds are excited, they begin to suck sap from the parts in which they are in contact; to supply the waste so produced, the adjacent sap pushes upwards; as the expansion of the leaves proceeds, the demands upon the sap near them become greater; a quicker motion still is necessary on the part of the sap, in order to make good the loss; and thus, from above downwards, is that perceptible flow of the fluids of trees, which we call the bleeding, effected.



A correspondent remarks that the well known fact of trees sprouting in the spring, although felled in the autumn, proved that the sap had not at that time quitted the trunk to take refuge in the roots. And we agree with him that such a common occurrence should have put people on their guard against falling into the vulgar errors on this subject.—*London Gardeners' Chronicle.*

COMMUNICATIONS.

There are three duties that every farmer owes to an agricultural paper; first, to subscribe to it; secondly, to *pay* for it; and thirdly, to write for it. A newspaper, to our poor thinking, is not the proper recipient of learned essays and scientific hypotheses; but it is calculated rather for the purpose of recording the practical results of the age in which we live, the thousand observations of living, working men, which but for such a record as this, would be lost forever to the science of agriculture. Inferences must be based upon facts, and facts can only be known from experiments. It behooves us then in the crude state in which this great science is admitted to exist, to begin with experiments. These the farmer must make; but, to make them available, he must conduct them with caution, with vigilance, and with economy. Instead of attempting to ascertain for himself the thousand facts which are necessary to the elucidation of the comprehensive art in which he is engaged, how much wiser, how much more rapid would be his advancement, if each individual would institute a particular set of experiments and mutually interchange the results with his neighbor. How interchange them? We answer, through the medium of an agricultural paper. Used in this way, an agricultural journal may be made to collect into one focus the straggling beams of light, and diffuse their concentrated effulgence where only a single ray glimmered before. Thus it is that knowledge may be diffused and science advanced. Of the value of such a journal, who can doubt? Such a journal it is our object to make the *Planter*, and as far as it depends on us, no exertion shall be wanting.

But let it be remembered, that this great desideratum, so conducive to the prosperity of the farmer and the progress of agriculture, is only to be obtained by the co-operation and assistance of the farmer himself; the editor can do nothing but serve up the dishes, the substantial material of which must be furnished by others; the paper, therefore, is valuable in proportion to the ability and willingness to contribute to it, of those amongst whom it circulates. In Virginia, the ability is not wanting; we defy the Union to produce a class of more intelligent farmers than those who cultivate the soil of the Old Dominion; but there is a backwardness amongst the best of them to communicate with us, that is the greatest bar to their prosperity and ours. Of

clever theories, written by intelligent, well educated young men, ignorant only of the subject on which they discourse, we receive the greatest abundance; but from the practical farmer who understands his business, and nothing else, we never hear. We know that to such men writing is a laborious business, but for the sake of the cause to which they are devoted, they ought to encounter it: they alone who know how to cultivate the soil, are for our purposes well educated, and they alone can enlighten each other and the world upon this subject. He is the most learned agriculturist, even if he does not know how to read or write, who can make the most crop with the least means. No matter under what garb he may appear, whether as prince or peasant, learned or not, the *successful* farmer receives the homage of our praise when we speak in reference only to the science of agriculture. Upon this subject it is the successful man whose knowledge we want. There are a plenty of people already in Virginia who make a barrel of corn to the acre; we want to hear from the man who makes eight or ten; and he whose land is deteriorating, whose stock is starving whilst his crops are growing "small by degrees and beautifully less," no matter how well his periods may be rounded, is respectfully requested to seek some other medium for the propagation of the practice which he pursues. It is no better than an imposition for a man who invariably makes bad crops, to appear in the columns of an agricultural journal, except for the purpose of asking advice. With these opinions, we shall leave crude guesses, formed in the absence of all real knowledge, to ingenious philosophers and flashy young gentlemen just from college, and seek to instruct our subscribers with the facts that well attested experiments are daily developing in the art of agriculture. Will our readers assist us in this design?

PROLIFIC YIELD OF CORN.

Mr. Jos. K. Roberts, of Prince George's county, Maryland, in a communication to the Editor of the Gazette, states that he made last year on an acre of land, *fourteen and one-tenth barrels of corn*, although it had suffered severely from drought in the month of August last. From twenty acres of the lot, from which this acre was taken, there was an average yield of *twelve barrels*. Mr. R. says:

As I have stated the quantity made, I feel it due from me to give the mode of cultivation. The land, a clover ley, was followed in the month of April, about seven inches deep, without manure, checked off a fraction over four feet apart each way, the corn soaked over night in water, rolled the next morning with plaster, and planted on the 13th day of May—after planting, the drag harrow was passed over between each of the rows to prevent the corn being washed out of the hills by heavy rains. When about knee high it was thinned, leaving three stalks in the hill, though there were many hills in which there were but two stalks. The after cultivation was with the cultivator at four different times, twice in each row, which is all the cultivation of any kind it received. When the corn began to tassel, it was slightly sprinkled with plaster.

WORKING CAST STEEL.

We have recently obtained information on this subject, from the most skilful and celebrated workman in the United States, Capt. J. Hill, of Billerica, Massachusetts. We were a little surprised to learn the difference in the management of cast steel, from that of the German. There is something yet remaining mysterious with regard to the nature and management of this article, which no cyclopedia or other vehicle of intelligence have as yet developed. The process of manufacturing cast steel, it is not our purpose at present to describe; but it is evidently composed of refined iron and carbon in very nice proportions. In the process of shaping it into cutting blades and other articles, it is heated and hammered in the manner of other steel: when tempered for this purpose, it is first heated to a full cherry red, and plunged into water till cold. It may then be held over a moderate charcoal fire, until the color of any part which has

been filed or made bright after hardening, changes to a reddish orange color. This is the temper for cutting-tools; but if a spring temper is required, it is heated over the charcoal till the color approaches a blue: or rather blue, inclining to red. In either case, when the steel is brought to show these colors, it is to be plunged in oil,—common lamp or linseed oil,—which will not affect the color. If the steel is to be rendered soft for turning or cutting, it must be heated to a full red, and left to cool in partially ignited charcoal; in this way it may be made so soft as to be cut or turned into shape as easily as copper, or even common pewter. But the most curious and peculiar process is that of welding. In welding iron, a white heat is indispensible, as every body knows: but not so with cast steel. When the steel is to be welded to iron, neither are to be heated above a full cherry red. The two parts are to be previously lashed or *griped* together, and in that condition, heated: they have then only to be immersed in calcined borax; or to have the prepared borax (borate of soda) sprinkled over the joint, and are ready to adhere by being hammered together. The borax for this purpose, is to be prepared by being previously heated to a full red, and kept heated till it becomes a soft white powder like flower. What the chemical effect of the calcined borax on the metallic surfaces is, is not perfectly understood farther than that its affinity for oxygen is such as to deprive the jointed surfaces of any portion of oxygen which might prevent a ready union of the surfaces. When small pieces of steel are to be welded, they are to be heated to the full cherry red, and immersed in the calcined borax, and are then hammered together. The most extraordinary point in this process is the fact that if the steel is but a little overheated, it will immediately crack into fragments; but by a shifted process, and with the use of borax, the cracks and defects may be healed and rendered sound and solid. We have witnessed the fact, that by a judicious management, a fine tempered cutting edge of cast steel may be bent, warped and hammered, and its shape materially changed, without breaking, or affecting the temper. More may be said on this subject in a future number; but we close for the present with a remark that, even Anderson & Co., the celebrated manufacturers of cast steel, are evidently unacquainted with all the merits of its peculiar properties.—*Scientific American.*

TERRIFYING RATS.

Dissolve a dwt. of phosphorus in one-fourth of a gill of olive oil, which may be done by applying a gentle heat, and whatever substance is smeared with this compound, will appear luminous for several hours. It is said that if a live rat be coated over with this minous oil, and then set at liberty, all the rats in the vicinity will immediately absquatulate to parts unknown, and never return.

From the S. C. Temperance Advocate.

NEWBERRY AGRICULTURAL SOCIETY.

Report of the Committee on the Horse.

There is no subject among the animal creation, that can more justly claim the attention of every man, than that noble and useful animal, the horse. There are a great number of animals under the control of man; on reflection we must say, that the excellent and noble horse, unquestionably, is the most serviceable.—How often do we see him the sole dependance of the poor farmer and his family. Trace him in all conditions, you will find him faithful, affectionate and no less useful. For the quick communications by posts, and stages, even with the most remote parts of the Union, we are indebted in a great measure to the horse. Even our happy republican government has been established, protected and defended by the means and aid of this noble animal. Reflect for a moment, and you cannot help but see, how battles have been won, tyrants dethroned and liberty sustained, by the aid of this noble animal. How often are we conveyed in safety at night, amidst difficulties, dangers and unfamiliar roads.

View him in the service of man in every situation, when treated with humanity, and he is always ready and willing with an aspect happy, cheerful and gay.

If by our report, we can aid in disseminating information to the public in the way of breeding and raising this noble animal, the horse, we think we shall have done some good. The breeding and raising of horses is both an amusing and pleasing task, and is well worth the attention of every person whose situation will admit of it. In the first place, be particular in selecting a good stock to breed from in order to raise a beautiful and good horse; a stallion should be made choice of, that will be a good cross and of good blood; he should not be less than five feet two inches high, but five feet four inches high is a preferable size. He should be well proportioned, elegantly formed, and clear of all defects, particularly the spavin and blindness, and should be a sure foal getter.

A mare should be made choice of, not less than five feet high, five feet four inches is preferable, with a delicate head and neck, great length of body, large belly; her thighs long, large, full and bulging; her fore arm large and swelling towards her breast; hocks broad, strong and bony; legs of moderate size, thin, flat and sinewy, pasterns rather long and small than otherwise. When you commence breeding with a mare of the above description, you are almost certain of raising a valuable colt.

Indeed, there appears to be a great similarity in the blood horses to that which exists in man, as respects their good and bad qualities, shape, &c. We see vice, common throughout some families, while we see virtue reigning in others. One breed of horses, under every care and attention, will only raise you a coarse horse or pony; whilst good blooded horses show strong marks of beauty, activity and size.

When a colt is foaled early in the spring, he or she will be under every benefit that can be derived from size, strength and age; it would be advisabe, to put a mare to a horse at such time as would produce a colt from the 10th to the 15th of April. A mare generally goes with foal eleven months and as many days as she is years old. After your mare has been put to the horse of your choice, she should not be confined only in bad weather, during her being in foal. Mares frequently produce colts at the age of fifteen years, and sometimes twenty years of age. They are not apt to produce at the latter age.

When the mare is near foaling let her be to herself; and if early to the season, let her have a good roomy stable to foal in; in good weather, let her and colt be turned into a lot of wheat or barley: do not let them be turned in a lot where there is green oats, it is poisonous to the colt. Wean the colt about the 12th of September, or the 1st of October, in a stable, until it is done fretting after its dam, then turn it in a lot; if you have more than one, they will do best together; stable them at night, and turn them out in the day time, except in bad weather; force them all you can the first winter. After they are one year old, they should not be kept so fat, nor permitted to get poor. A stud colt, which is intended to be kept as such, should be separated from other horses at eleven months or a year old, and stabled of nights, his rack and manger should be so high as to strain him a little to get his food; the windows of the stable should also be high, as he will be looking out at them; by this means his shoulders will be thrown back and his wethers raised. How graceful it looks for a horse's shoulders to be well thrown back, and his wethers well raised.

The best plan we have found to increase a colt's quarters, enlarge his muscles, and other material parts, is to keep him in the stable, frequently for several days altogether, which will animate him, then turn him out in a lot, and encourage him to run and exert himself all you can, as his parts will acquire size and strength in proportion to the use made of them.—When a colt arrives at the age of two or two and one-half years old, it is time that he should be handled and taught the use of the bit. It is of great consequence he should be first gentled by a person who

well understands the management of horses, to prevent bad habits; as first impressions are hardly ever entirely removed from mare or horse.

We recommend corn for colts in the winter, and oats in the summer. Colts and horses should be furnished with good stables, great attention should be paid to stables, the removal of all offensive and putrid matter, to prevent diseases, which frequently proceed from such neglect.—A log stable is preferable to any other, on account of its admitting a free circulation of air in the summer; and by the use of rough edge plank and straw in the winter, can be made warm. The rack should be smooth, high, and firmly fastened to the wall, which will prevent a horse from injuring his eyes, skinning his face, and doing himself other injury when feeding. The upright pieces in a rack should be four or four and a half inches apart, to prevent long food from being unnecessarily wasted. The halter should never be tied to the rack, (horses have been ruined by such carelessness,) but should be passed through a ring in the manger and confined to a longer or a smooth piece of wood weighing about a pound. A stall should be four and one-half or five feet wide, which will allow him to lie down with comfort.

Very respectfully submitted,
H. H. Henan, *Secretary.*

A HINT TO DAIRY FARMERS.

Last week we took an opportunity of visiting a farm occupied by Mr. Dumbrell, who has adopted the system of tethering his cows upon a somewhat new and profitable system. The land is of a light shravy soil, and through the judicious management of the tenant, by the economical use of liquid manure, and by judicious depasturing, he has brought the land into a high state of cultivation. The Alpha and Omega of his system is, perhaps, that of root culture, which has enabled him to keep a much greater number of cows upon the land to the acre than is to be met with in the neighborhood. The great difficulty which most dairy farmers meet with in keeping cows, probably, during the two months preceding the hay harvest, has been overcome by Mr. Dumbrell, who, by tethering the cows, is enabled to make the meadows of comparative smaller dimensions than is customary, yield food in sufficient abundance for his dairy. The usual way of tethering is to allow a cow the range of a circle to the extent of the chain; and when it has eaten down its food within its area it is removed to another spot. Instead of doing this, Mr. Dumbrell tethers his cows with a chain of twelve to fifteen feet; and when it has consumed the grass within its reach, the pin is removed onward a foot and a half; the cow then eats this quantity, and is again allowed another bite of the same extent. This plan prevents the animal from treading on the food which it consumes while quite fresh, and the chain assists in distributing the droppings. The field is thus fed over evenly, and all is consumed and none trodden upon. Mr. Dumbrell professes to realize good profits from his system, and with a degree of liberality highly creditable to his character reserves no information from his visitors.—*Surrey Standard.*

From the Richmond Whig.

FARMERS' CONVERSATION MEETINGS.

Messrs. Editors,—It is a subject for regret to every thinking agriculturist of Virginia, that there should exist so few aids by means of associated effort, or any other than individual and isolated action, for extending agricultural information.—No where else has individual intelligence and action done more for agricultural improvement and profit, than can be found in Virginia, and no where has less been effected by any combined efforts of the agricultural class, or even any considerable portion thereof. It scarcely need be added, that the Government, the *State* of Virginia, has done nothing whatever for this all-important object.

There have existed in Virginia numerous agricultural societies, and some still exist. Some of these societies have, at

particular junctures, elicited and disseminated valuable information. But much the greater number have done nothing, or worse than nothing, for the proper and great object of all such associations—the eliciting and diffusion of agricultural knowledge. The radical defects of constitution and procedure, which have produced such general inefficiency, it is needless here to point out, and would be improper to illustrate by citing examples. It is enough that the general fact is undeniably and lamentably true. It cannot be doubted that great benefits would be derived from agricultural societies properly constituted and properly working. But despairing of any such new course being soon commenced, it is my present design merely to propose much more humble and unpretending, and yet more efficient means for reaching the same desired ends. Useful, convenient, and also cheap substitutes may be found—conversation meetings of farmers, to be held at stated times and places, but without much of formal organization. That such meetings are extremely interesting and attractive, as well as highly instructive, has been fully proved in practice in England and in Massachusetts. Those in Boston were held weekly during the session of the Legislature, when other business necessarily brought together there many of the best farmers from all parts of the State. The meetings had no permanent organization. The then able agricultural surveyor (the Reverend Henry Colman) presided at the meetings, merely to preserve order and the rules of debate. The meetings were open to all, whether as mere auditors, or as sharers in the discussion, to elicit or to furnish information. At the close of each session, the subject for the next was agreed upon, and notice of it published, so that every neighboring farmer had time to attend, who might especially desire to hear that subject discussed. All that would be needed to complete the operation of such meetings, if begun in Virginia, would be the cost of the services of a competent reporter of the matter furnished in the discussion, and of the printing of such reports. In Boston the publishers of several different papers (political as well as others) were glad, for their own gain, both to report and print the discussions of these meetings.

Richmond, especially during the session of the Legislature, would be the best place for commencing such conversation meetings. But there is not a county, or scarcely a neighborhood, in which such meetings might not be held to great advantage.—Hundreds of farmers would in this manner freely and fully *tell* their experience and opinions, of whom perhaps not one could be prevailed upon to *write* them.—And thus, with no more expense than necessary to take notes of and report the proceedings, and to publish proper selections, the results of the researches and experience of every farmer in Virginia might be open to the use and instruction of every other.

If it be not presuming too far, Messrs. Editors, I ask of you and your city brethren of all parties to aid this scheme (if approved) by your recommendation and influence. Though, at this time, it may be deemed a sacrifice for any newspaper to withhold as much space from the political discussion as will admit any article on agriculture, I am confident that the paper which could obtain, and would publish such reports of agricultural discussions, would therein provide (for all country readers at least) matter more acceptable than of any other kind.

If this plan should find enough favor for support, let any five or six farmers, or friends of agricultural improvement, who can meet together at any hour in Richmond, appoint a time and PRIVATE place for the first meeting, and invite generally to attend it all who may be inclined to aid in the labors. To make sure of beginning well, the participation in the first proceedings of some few neighboring farmers should be secured by special application. A first meeting might be obtained within two weeks after the published notice, and weekly thereafter, if desired so often.

A COUNTRYMAN.

Richmond, January, 1847.

VIRGINIA AND HER PROSPECTS.

For many years, our attention has been turned to the subject of the pecuniary prospects of the agricultural portion of Virginia, and perhaps it is not too much to say that our position as Editor of the only agricultural periodical in the State, has afforded us peculiar opportunities of investigating the subject.—The result of our observations may be neither uninteresting nor uninstructive to our readers.

Our climate is fructifying, our soil is productive, our markets are good, our farmers are skilful and laborious, and yet, we are poor, *very* poor. Although we are not of those who consider all earthly happiness to be concentrated in the possession of riches, yet we have seen enough of the world to enable us to put a proper estimate upon the grinding ills of poverty. We have said that our climate was propitious. The variety of our vegetables and the flavor of our fruits prove, that Nature has bestowed upon us the advantages that she usually accords to our temperate latitude.—We have said that our farmers are skilful and laborious, and although there are undoubtedly lazy men and skinned fields in Virginia, as every where else, we do not hesitate to declare that we have never seen any community of agriculturists in this country, amongst whom more information or greater industry are to be found than is exhibited by the farmers of Virginia. Why is it, then, that we are poor whilst others are growing rich? We answer, simply because we consume more than we produce. It is not that we make less, but that we spend more.

Is extravagance, then, a feature of our Southern character? We propose to answer this question by stating what we consider to be the exact state of things in Virginia, which is probably only a type of others of the older States of the Southern country. Our forefathers found here an unexhausted soil, and their agricultural products were not only abundant but the monopoly of the tobacco trade, which they almost exclusively enjoyed, brought them enormous incomes. Large incomes necessarily, amongst an ardent, generous people, induced proportionate expenditures. The institutions of the country, the character of the people, and the circumstances of the times, begat an aristocracy that contained within itself all the seeds of good and evil with which such a state of society is always charged. Pride, a high sense of honor, refinement, extravagant habits, and a prejudice against manual labor; these were the virtues and the vices that we inherited from our ancestors. But with these aristocratic tendencies, they did not bequeath us the means or the opportunity of enjoying them. If Napoleon could have continued to withdraw from the cultivation of the earth the millions of European peasants who were transferred from the plough to the ranks of his opponents, American wheat might still have brought two dollars a bushel, and Virginia might even yet have survived the competition of the growing West. But we are now suffering from the cankers of a long peace. Our great staples are no longer confined to the seaboard; the forests of the West have yielded to the axe and the plough, and at the same time that the demand has lessened, the product has been increased. Our incomes have greatly diminished, whilst our expenditures have not decreased in any thing like an equal ratio.—The wealth of a country is measured not by the actual annual production, but by the excess of production over consumption; the man who makes a thousand dollars per annum, may add less to his store of wealth than he who makes five hundred. Although necessity and obvious wisdom have forced something of economy upon us, such is the influence of habit, so hard is it to abridge the expenditures to which we have been accustomed, that with all our exertions, we are still behind the mark. In other words, we believe that the people of Virginia as a community, consume more than they produce. The result is that they are left entirely without means for the developement of their unbounded natural resources. Our people are not less generous, less noble, judicious or enterprising than their northern neighbors; but they are *poorer*. They are suffering from the moral incubus of habits and customs totally unadapted to their circumstances, and although they are struggling manfully to shake it off, it is an obstacle that Time alone will enable us to overcome. The moral difficulties

arising from the habits and customs of a people, present barriers to their progress infinitely more insuperable than physical obstacles. A rough country may be levelled or an arid one watered by physical exertion, but to revolutionize the habits and customs of a people, the slow and steady march of moral force is alone effectual. It is exactly the difference between *mind* and *matter*.

What avails it, then, that we have unlimited resources in our mountain minerals, or that our exhausted lands bear within their own bosoms the ready sources of renovation.—These resources cannot be developed without capital, and we can never have that capital, until we learn to accumulate it by reducing consumption below the standard of expenditure.

This is the cause of our poverty, and this poverty will continue to increase until it finally works its own cure. When this great revolution is brought about; when the youth of Virginia shall no longer consider it disreputable to be employed in manual labor, when they have learned universally to succumb to the fate which our republican institutions, the abolition of entails and the law of primogeniture so sternly forces upon them, when they become workers instead of drones in the social hive, when the farmers bill with the grocer, the wine merchant, and the retailer of dry goods, is reduced to one-half its present amount, then will it be time enough to talk about developing the physical resources of Virginia; for then only will we possess the means by which it can be effected.

We are not of those who scoff and revile our countrymen for the unfortunate circumstances which no wrong-doing of their own, but the natural current of events, has forced upon them. We most heartily sympathise with them in the struggle to which they are doomed. This struggle they are now encountering with the manfulness that belongs to their race. We can imagine and pity the emotions with which a man finds himself compelled to abridge the luxuries that from habit and education have become necessaries to those whose comfort and well being are the great objects of his existence. This is a struggle which calls forth all the energies of the man, and though the contest is not marked with the painted cloth or gleaming steel that endears the battle-field to the vulgar eye, the severity of the contest is not the less appreciated by the man of feeling.

From circumstances, then, almost insuperable, we are extravagant, and, therefore, *poor*, and so we must remain until time and our own exertions have ameliorated our condition. We will illustrate the effects of this extravagance.

A very shrewd and intelligent Yankee once called on us to assist him in making an intended purchase of land in Virginia. We recommended him especially to a very enlightened and refined portion of the State, where the facilities of lime and water communication rendered the lands, as we thought, particularly desirable. He visited this region, and afterwards informed us that he declined the proposed emigration. He said he could do better at home. It was true he could sell his own land for sixty dollars an acre, and buy equally productive in Virginia for fifteen dollars; but, said he, I am improving my condition at home by spending less than I make, and although by purchasing in Virginia I am satisfied I could double my income, still, I believe, that a residence here, such are the manners and customs of your people, would involve an expenditure three times as great as that I am called on to make at home. Hence, my farm in Western New York is cheaper than the lands in Virginia. We suggested to this gentleman that it might be possible to unite the more economical habits of his own people with the advantages of our lower priced lands. With an irrepressible sneer of contempt for our ignorance of human nature, he replied, "Sir, I should bring my wife and children with me. Do you not know, whatever might be my desire, it would be impossible to mould the habits of my family in a different form from those of the world by which they would be surrounded? At home they are content and happy with an expenditure of four hundred dollars per annum; and this, because it furnishes them with a style of living equal to that of the circle in which they live. The

same circle in Virginia would, I am satisfied, require an expenditure of fifteen hundred dollars. Your lands are apparently cheap at fifteen dollars an acre, but your habits and customs make them really dear."

The correctness of this logic is confirmed by the universal fact, that the price of lands in Virginia is governed more by the habits of the people, than the quantity of product or the facility to market. Witness the difference between the price in Rockingham and Albemarle. Another instance of a similar character came under our observation.

A manufacturer from the North came to Richmond to seek a new location. He admired the water power and was satisfied with the superior cheapness of coal and iron, (he was an edge tool maker,) but he declared he could manufacture cheaper at home than here, owing to the difference in living. Why, said we, the price of dry goods, groceries and marketing, is not greater than in your present location—we happened to know something about his place of residence. His reply was, that the expense of living depended not so much upon the *price* of goods as upon the quantity and quality that the habits of the community render necessary for consumption. The question is not, said he, what is the price of silk per yard, but who are expected to wear silks? Like his predecessor, he concluded that Virginia was no place for a hard working economical Yankee family.

That this unfortunate state of things does exist in Virginia, is a source of regret to none more than the Editor of this paper, and he humbly conceives that an exposition of these views, so far from doing injury, can only have the effect of removing the evil by opening our eyes to the difficulties under which we labor.

MODE OF CUTTING WOOD.

It is now generally admitted that the best mode of treating a lot devoted to wood is to cut all clear as you go; for you thus avoid injuring the young growth, and you leave young stumps to send out their sprouts instead of old ones, that often fail to produce any.

A different practice has long prevailed in New England. Farmers have entered their wood lots and felled the old trees that had begun to decay. And in their fall one of these would crush a hundred small shoots, and destroy all prospect of a second growth. By singling out individual trees and thinning your forest you improve not the growth of the remaining standards, and you encourage not the growth of young ones. A few old trees will keep the ground shaded enough to discourage a young set, and yet the grass will spring up and prove a nuisance to all other vegetation. Trees in a tolerably thick forest are known to grow faster than such as are sparse and have a greensward to contend with.

For timber you can leave a sufficient number of trees apart from your wood lot. But you want no large trees for fuel. The labor of splitting large logs for our modern small fire places and stoves is too expensive, and smaller wood is more saleable than the largest logs.

In France, where necessity has taught people to make the most of a wood lot, the land is cut over quite frequently, and none but small wood is seen for fuel. It is found profitable to cut oftener than we can afford to in this country on account of the low price of labor. But some of our farmers here have cut their lots off with only twelve years' growth. Twenty or twenty-five years will give a pretty handsome growth on many soils, and it is doubted whether any lot ought to stand longer for wood.

It should be borne in mind that after repeated cuttings the sprouts will shoot up sooner than after a first or second clearing, and that the closer you cut the stump the more vigorous will be the growth.—All the shoots have a fair start when the lot is cut in this way, and all contend for the mastery. There seems an actual rivalry among young trees when they have such an opportunity to show themselves.

In regard to the best time of the year for cutting in order to insure a new growth in the shortest period, there may be some difference of opinion. The winter months are most commonly devoted to this service,

but June is the time when much wood is cut off for coaling. August is considered an unpropitious month for cutting when the sprouts are to be encouraged. And August is generally considered the best month to destroy young bushes with a scythe.

Ten acres of woodland will yield wood enough for one family in case of prudent management. With ten acres you have the cutting of half an acre each year; and this a growth of twenty years.

People who suffer their wood, or timber either, to outstand its time are great losers.

I have seen a chestnut lot which was one-half of it cut off clean, while the other half was kept for timber. In twenty-two years from the time of cutting, the whole lot was appraised, in consequence of a division of the estate. The lot which had been cut off was valued higher than the part that had not been touched. This amounted to a total loss of the timber which was left standing.

A five acre timber lot lies now in sight of my dwelling. The wood on this lot would have brought, standing, one dollar per cord, and I should judge there were forty cords to the acre. If that wood had been sold at that time and the money put out at interest it would now amount to three hundred and sixty dollars for each acre—yet the timber now on it, though it has been cared for with scrupulous attention, will not bring two hundred dollars per acre.—*Maine Cultivator.*

CULTURE OF STRAWBERRIES IN ALTERNATE STRIPS.

A still more easy and economical mode [than that of culture in rows,] is that of growing the strawberry in alternate strips.

Early in April, or in August, being provided with a good stock of strong young plants, select a suitable piece of good deep soil. Dig in a heavy coat of stable manure, pulverizing well and raking the top soil. Strike out the top rows, three feet apart with a line. The plants should now be planted along each line, about a foot apart in the row. They will soon send out runners, and these runners should be allowed to take possession of every alternate strip of three feet—the other strip being kept bare by continually destroying all runners upon it, the whole patch being kept free of all weeds. The occupied strip or bed of runners will now give a heavy crop of strawberries, and the open strip of three feet will serve as an alley from which to gather the fruit. After the crop is over, dig and prepare this alley or strip, for the occupancy of the new runners for the next season's crop. The runners from the old strip will now speedily cover the new space allotted to them, and will perhaps require a partial thinning out to have them evenly distributed. As soon as this is the case, say, about the middle of August, dig under the whole of the old plants with a light coat of manure. The surface may be then sown with turnips or spinage, which will come off before the next season of fruits.

In this way the strips or beds, occupied by the plants, are reversed every season, and the same plat of ground may thus be continued in a productive state for many years.

Both the above modes are so superior to the common one of growing them more closely in beds, that we shall not give any directions respecting the latter.—*Michigan Farmer.*

From the American Farmer.

ITEMS ON AGRICULTURAL EXPERIMENTS, FROM THE BRINKLEYVILLE ESTABLISHMENT, N. C.

Mr. Editor,—Through press of business having been prevented from communicating for your useful periodical, some months, I now offer you items on several subjects in a condensed compass,—and

1. As to my vineyards,—I report progress therein by stating that the past vintage has yielded me the rise of forty barrels of wine, and that of a still improving quality—every gallon of which, from past experience, I calculate will be good and saleable. Besides in the same vintage I

have sold a considerable quantity of grapes, sent for to my premises; and entertained hundreds of visiters, paying their entrance fee into my vineyards to partake of grapes. And to show the contrast of my American system of wine culture, with that of the European, in one particular, I state, while those in my vineyard were furnished with benches and other facilities, to reach the fruit on the canopies above; those gathering grapes in Europe, where vines are kept humble, or a few feet only in height, have to stoop downwards to gather.

As an evidence of the great bearing qualities of an American vineyard, managed the American fashion of letting the vines eventually run unchecked over scaffolding seven or eight feet high, and nothing but posts and main stem of vines seen beneath, I have to state that after a hundred persons at a time, had partaken abundantly, from about a quarter acre of vines nearest my house, the grapes abstracted could not apparently be missed; but the same sheet of fruit, to appearance, was visible above. The kinds that diversified the said entertainment, were the Scuppernong, the Norton's Virginia Seedling—the Weller's Healepair, the Cunningham and Fragrant. The last named fruit together with the Scuppernong, (also fragrant,) diffused a delightful perfume to a considerable distance of the premises. But I hasten to another subject, viz:

2. As to the Jerusalem artichoke, I had tried the common artichoke, indigenous here—with some success—or had made on ordinary soil at rates of three hundred bushels per acre. But having opportunity last fall a year, I purchased at two dollars per bushel, some of the Jerusalem. The result of their culture has surpassed my expectation. On different lots according to careful calculation I have made, at rates of eight, nine, ten, and even twelve hundred bushels per acre. To test the relative merits of the Jerusalem and common kind, I planted three rows on the same ground, side by side, and they had the same culture. The one Jerusalem—and other two common kinds—the red and white. I dug twenty feet of each row and measured the product—as follows: the Jerusalem one and a half bushels and six quarts; and common, each six quarts. Or about nine times more of the Jerusalem than the others. Or calculating rows three feet apart, the three wide and twenty long, sixty feet square measure. Then for Jerusalem, stated as follows:

feet.	feet.		quarts.	bush.	peck.	qts.
As 60:	210X210=44000	:	54:	1240:	1:	2

As is 1240 divided by 9, equal to 137 bushels, and more. This disproportion is greater, I suppose, through a dry spell in critical time, for the common kind, which caused the leaves to dry up, or *fire*, as we say here of corn thus injured. Perhaps more than half failure on this account; as more than double the yield of the common kind previously. But most of the leaves kept green till frost. The stocks of the latter grew generally twelve feet high, and some fifteen; common, several feet lower. From the best light and experience, I consider about four feet drills, and two feet in the drill best distance for planting the Jerusalem on ordinary ground. Of a lot planted thus I dug the distance of ten feet one way and four the other—and found three pecks—which I calculated was a yield of 826 bushels and 3½ pecks per acre,—five stocks (twelve feet high and very branching,) were on this acre of forty feet. The ground was filled in every direction more or less to the depth of about one foot. In some instances, however, I have found artichokes, of the Jerusalem three and four feet from the parent stock, and as large as those nearer. The size of the Jerusalem tuber is not large—even less than the common. Their great yield is owing to the multitude of them perforating the ground in every direction. And their great profit of culture is their abundant supply of food for swine; and that without gathering even. For hogs turned in upon a lot of them, will not only live and thrive, but fatten also with about a fifth of the usual quantity of corn for fattening.

I find the best way of gathering, is to plough the ground flush, and some children, say, to follow the plough to pick up. But after gathering in this way, abundance is left for swine. When boiled

and mashed, or cooked as turnips, they make a sauce for human food, esteemed excellent by most who have tried them. The Jerusalem are finer for pickles than the common, as the former is smooth and uniform shaped; while the latter rough and unsightly. The Jerusalem, in shape and look resemble small sweet potatoes. So great is the yield, and so profitable for swine, that they are fast being introduced into general culture in North Carolina.—In the Western and more Southern States their culture has been on the advance for several years past. It appears from experiments stated in various periodicals, that this esculent flourishes any where in the United States. But I hasten to close with a passing notice of one more item, viz:

3. The Okra. This plant, recommended by Mr. Ellsworth of the Patent Office, to have seed as good for coffee as the Java, I cultivated for that object. Most of my family and those here trying this *American coffee*, prefer it to the *Eastern*. And it is certainly more healthy. With a few seed obtained from the Patent Office and elsewhere, I have made several bushels. The result of my experiments as to yield, is that an acre in good tilth will yield about 25 bushels of seed, which at 60 lbs. per bushel, is 1500 lbs., which at ten cents per pound, is 150 dollars. To get the seeds from the pods, I pass the latter through my corn sheller machine. Beating the pods as wheat, will answer the same end. But all, most respectfully submitted by yours, and the public's humble servant,

SIDNEY WELLER.

Brinkleyville, Halifax Co., N. C., Dec. 3.

POTTING PLANTS—INTERESTING EXPERIMENT.

At a late meeting of the Natural History Society of Brooklyn, Mr. Brigham stated the successful result of an experiment he had been making for the purpose of potting plants which had been reared in the ground, in order to obviate the injurious consequences of the *wilt* when transplanted in the usual way. The Advertiser says:

"His experiment was upon the chrysanthemum, or artemesia, around which he made a small incision directly under the branches, and then enclosed the trunk in a mass of compost contained in a flower pot, which he severed for the purpose, and bound firmly together. The stalk of the plant was then cut off below the vessel, and in three weeks an innumerable quantity of rootlets shot out from the above incision, and took vigorous hold in the soil, while the plant was preserved in its pristine freshness, and unfading bloom.—Mr. B. stated that he had no doubt most plants might be treated successfully in the same way; at all events, this was a subject upon which the amateur florist might experiment with pleasure and profit. It was mentioned that the Chinese dwarfed their fruit and other trees in a similar manner; whereby they have full crops of fruit upon trees three or four feet high. Mr. Brigham admitted that he had derived the idea of his experiment from the lectures of Fletcher Webster last season before the Institute on the subject of China."

PICKLES.

A correspondent of the New England Farmer, gives an easy and efficacious method of pickling cucumbers, which he learned from an old sea captain in the West Indies. The recipe is very simple, and the superiority of pickles cured by its directions, has been tested by many years' experience. They are neither affected by age, season or climate. The following is the recipe:

"To each hundred of cucumbers put a pint of salt, and pour in boiling water sufficient to cover the whole. Cover them tight to prevent the steam from escaping, and in this condition let them stand for twenty-four hours. They are then to be taken out, and after being wiped perfectly dry, care being taken that the skin is not broken, placed in the jar in which they are to be kept. Boiling vinegar (if spice is to be used it should be boiled with the

vinegar) is then to be put to them, the jar closed tight, and in a fortnight delicious hard pickles are produced, as green as the day they were upon the vines."

MODES OF PRESERVING BUTTER.

In all that has been written on this subject in this country we have seen no recommendation to melt and strain it. Yet there can be no doubt that this process proves effectual. We have often told our readers that thorough working is necessary, to exclude the buttermilk, and leave the butter pure. We have told them that it has been kept sweet for years without a particle of salt by separating entirely the impurities that are found on churning the cream. But this is not always an easy matter. Washing with pure water is the best method that we have practised, or known to be practised in this country.

We have often asked the question why we should not boil the butter that we propose to keep, as we boil the fat of the hog for lard, and the fat of cattle and sheep for tallow?

It is well known that lard and tallow will keep sweet for a year without salt. And who can doubt that butter may be kept as long? On examining a recent publication, which we noticed in one of the late numbers of the Ploughman, "On the Food of Animals, by Robert D. Thomson, of Glasgow," we find the following remarks:

"*Mode of Preserving Butter Fresh.*—The cause of the tainting of fresh butter depends upon the presence of the small quantity of curd and water as exhibited by the preceding analysis. To render butter capable of being kept for any length of time in a fresh condition, that is, as a pure solid oil, all that is necessary is to boil it in a pan till the water is removed, which is marked by the cessation of violent ebullition. By allowing the liquid oil to stand for a little, the curd subsides, and the oil may then be poured off, or it may be strained through calico or muslin, into a bottle, and corked up. When it is to be used it may be gently heated and poured out of the bottle, or cut out by means of a knife or cheese gouge. This is the usual method of preserving butter in India, (ghee,) and also on the Continent; and it is rather remarkable that it is not in general use in this country. Bottled butter will thus keep for any length of time, and is the best form of this substance to use for sauces."

NEW WAY TO WASH CALICOES.

Infuse three gills of salt in four quarts of boiling water, and put the calicoes in while hot and leave it till cold. And in this way, the colors are rendered permanent, and will not fade by subsequent washing.

FOOD OF ANIMALS.

To Messrs. Nash & Woodhouse we are indebted for a copy of a work that has made some noise in the scientific world and which is certainly worthy of the attention it has attracted. It is entitled "Experimental Researches on the Food of Animals and the Fattening of Cattle, with Remarks on the Food of Man; based upon Experiments undertaken by order of the British Government: by Robert Dundas Thompson, M. D., Lecturer on Practical Chemistry, University of London."

These experiments seem to have been instituted and conducted with great care upon the animals that were selected for the purpose, and after a careful perusal of the work we shall endeavor to inform our readers of the practical results at which Dr. Thompson arrived, without troubling them with the details of the experiments or the scientific theories that may be deduced from them, and for the greater convenience of our readers, we will endeavor to arrange the different subjects of which he treats under their appropriate heads.

THE ARTIFICIAL DIVISION OF FOOD.

The Doctor explains to us that all cloven-footed or ruminating animals are provided with an extra pouch or stomach into which undivided food passes without being chewed. Here it undergoes a process of decomposition and is returned to the mouth to be ground over

and then passed into the true stomach. But if in the first instance the hay be well cut up or the food be finely divided, the whole passes at once into the proper stomach, and the wear and tear dependant upon the ruminating process is entirely saved. Such is the effect of a straw cutter and a potato chopper.

A MODE OF PRESERVING BUTTER.

The great difference between the butter in the Richmond and the Philadelphia markets consists chiefly in the better working of the latter. With all butter as it comes from the churn is incorporated a certain proportion of water and curd. The pure oil is incorruptible, and if excluded from the air would keep forever: but the impurities united with it vitiate the taste of pure butter at first, and by their speedy decomposition convert the marrowy mass into the rank compound that perfumes our market house and our groceries. The good butter-maker expels these impurities by beating, and the rottenness which so frequently disgraces the butter of Virginia is attributable only to ignorance or laziness. For those infected with the latter quality Dr. Thompson recommends an operation similar to that by which we purify our lard. He says:

"The cause of the tainting of fresh butter depends upon the presence of the small quantity of curd and water as exhibited by the preceding analysis. To render butter capable of being kept for any length of time in a fresh condition, that is, as a pure solid oil, all that is necessary is to boil it in a pan till the water is removed, which is marked by the cessation of violent ebullition. By allowing the liquid oil to stand for a little the curd subsides, and the oil may then be poured off, or it may be strained through calico or muslin, into a bottle, and corked up.—When it is to be used it may be gently heated and poured out of the bottle, or cut out by means of a knife or cheese gouge. This is the usual method of preserving butter in India, (ghee,) and also on the Continent; and it is rather remarkable that it is not in general use in this country. Bottled butter will thus keep for any length of time, and is the best form of this substance to use for sauces."

THE PROPER MODE OF CURING HAY.

Upon this subject Dr. Thompson makes some very valuable remarks. We will endeavor to condense them:

"It should be an object with the farmer to cut grass for the purpose of haymaking at that period when the largest amount of matter soluble in water is contained in it. This is assuredly at an earlier period of its growth than when it has shot into seed, for it is then that woody matter predominates; a substance totally insoluble in water, and therefore, less calculated to serve as food to animals than substances capable of assuming a soluble condition. This is the first point for consideration in the production of hay, since it ought to be the object of the farmer to preserve the hay for winter use in the condition most resembling the grass in its highest state of perfection. The second consideration in haymaking is to dry the grass under such circumstances as to retain the soluble portion in perfect integrity.

"The great cause of the deterioration of hay is the water which may be present, either from the incomplete removal of the natural amount of water in the grass by drying, or by the absorption of this fluid from the atmosphere. Water, when existing in hay from either of these sources will induce fermentation, a process by which one of the most important constituents of the grass,—viz: sugar—will be destroyed.

"The quantity of water or volatile matter capable of being removed from hay at the temperature of boiling water varies considerably. The amount of variation during the present experiments was from twenty to fourteen per cent. If the lower per centage could be attained at once by simple drying in the sun, the process of haymaking would probably admit of little improvement; but the best new-made hay that we have examined contained more than this amount of water, the numbers obtained verging towards twenty per cent. When it contains as much as this it is very liable to ferment, especially if it should happen to be moistened by any accidental approach of water. The only

method which we have found to succeed in preserving grass perfectly entire is by drying it by means of artificial heat. Rye grass contains, at an early period of its growth, as much as eighty-one per cent. of water, the whole of which may be removed by subjecting the grass to a temperature considerably under that of boiling water; but, even with a heat of 120°, the greater portion of the water is removed, and the grass still retains its green color, a character which appears to add greatly to the relish with which cattle consume this kind of provender. When this dried grass (as it may be truly termed by way of distinction from hay) is examined, it will be found to consist of a series of tubes, which, if placed in water, will be filled with the fluid, and assume, in some measure, the aspect of its original condition. In this form cattle will eat it with relish, and prefer it to hay, which, in comparison, is blanched, dry and sapless. The advantages obtained by this method of making hay, or rather of preserving grass in a dry state, are sufficiently obvious. By this means all the constituents of the grass are retained in a state of integrity; the sugar, by the absence of water, is protected from undergoing decomposition, the coloring matter of the grass is comparatively little affected, while the soluble salts are not exposed to the risk of being washed out by the rains, as in the common process of haymaking.—The amount of soluble matter capable of being taken up by cold water is, according to the preceding trials, as much as five per cent., or a third of the whole soluble matter in hay. We may, therefore, form some notion of the injury liable to be produced by every shower of rain which drenches the fields during hay harvest.—It is not only, however, the loss which it sustains, in regard to the sugar and soluble salts, that renders hay so much less acceptable than grass to the appetite of cattle. The bleaching which it undergoes in the sun deprives it of the only peculiarity which distinguishes the one form of fodder from the other; grass deprived of its green coloring matter presents exactly the appearance of straw, so that hay ought to be termed grass straw.

"Frequently the quantity of rain which falls in May and June, the haymaking season, is greater than in April and July. In those localities where the fall of rain is so considerable, the preparation of good sound hay by the usual process will be almost impracticable, and in such places too frequently hay in a state of decomposition is given to animals, at the risk of their being seriously injured, since all food whose particles are in a state of fermentation or putrefaction, which are analogous actions, must have a tendency to produce similar decompositions in the fluids of the animal system. In the neighborhood of manufacturing towns there could be no difficulty in preparing abundance of hay by the process now recommended. The waste heat of the chimneys might be sent through apartments or sheds of almost temporary construction, guided by a proper draught, so as to carry off the vapor as soon as it is volatilized; and the same arrangements might, with economy, be adopted in conjunction with brick and tile works. Haymaking would thus commence at a much earlier period of the season, the grass would be cut, carted to the drying-room, and in the course of a few hours be ready for stacking. When hay prepared in this manner is to be given to cattle and horses it may be steeped in a tank for twenty-four hours, or any adequate period, before being placed in the racks and boxes; and the steep water, which will contain sugar and soluble salts, should be given them to drink.

"By this system of preserving grass we should be continuing to our cattle in winter our summer food, which all admit to be superior to every other substitute; and while the animals themselves would be benefited, much uneasiness and trouble in winter would be saved to the farmer. In a moist climate, especially like that exhibited in Scotland during the last year, it appears highly desirable that farmers should possess on their premises a drying-room, where hay, potatoes, and even corn, might be dried. Had such a convenience been attached to many of our farmers'

offices last season much corn might have been saved, even by drying one or two cart loads daily. This desideratum might be effected by running a flue through the barn, level with the floor, its upper surface being covered with iron plate or tiles. By means of a small quantity of fuel a barn full of corn in sheaves, properly disposed, might be dried in a few hours. The artificial method of drying grass here suggested will of course be unnecessary when the grass can be deprived of its water by the heat of the sun with sufficient rapidity, and without being exposed to the drenching influence of the rain of our northern climate. That rapid drying can be effected, even in wet seasons, in Scotland, I have had an opportunity of witnessing, in the case of an excellent sample of hay prepared during the summer of 1845, on the grounds of Mr. Fleming, of Barochan, for a specimen of which I am indebted to that gentleman. The only complaint which I have heard offered to the England plan of haymaking is the additional amount of labor required, but surely any rational excess of labor is preferable to the complete deterioration of the hay crop."

GAPES.

We have always succeeded in curing the gapes by timely exhalation of a strong tincture of assafœtida, which we used under the supposition that *worms* were the cause of the disease, and that the smell and taste of that noxious tincture would dislodge them, and as a prevention of the disease we have successfully placed a small portion of the drug in the vessel in which the chickens received the drink.

American Farmer.

A HAY PRESS.

The question is frequently asked us, "How and where can I get a good hay press?" We see in some of our Northern exchanges one invented and manufactured by Mr. W. S. Bullock, of New York, very highly spoken of. Indeed, we have had some opportunity of inspecting this press in person, and have formed a very favorable opinion of its merits. We believe such a one as would suit the hay packer of Virginia, would cost about one hundred and twenty dollars. For further information, address S. W. Bullock, 27 Peck Slip, New York.

TO DESTROY RED ANTS.

As every housekeeper may not know how to get rid of these troublesome little intruders, I will state my experience.—Place a piece of fat bacon, or a pan of grease or butter near the place where they enter the kitchen or pantry. This will soon attract them together, when they can be easily removed, or destroyed by a little hot water. Thousands may be destroyed in this way in a few days.—*Ohio Cultivator.*

THE PROPERTIES OF MANURES.

BY R. L. PELL, ESQ., OF PELHAM.

Read before the Farmers' Club of the American Institute.

Gentlemen,—You could not possibly have selected a subject for discussion of more vital importance to the country than manure. Without it in some shape, the agriculturist cannot by any possibility succeed in his avocation. It never was intended by the Deity, that man should annually take from the soil its productions, and make no return. Such has been the case in Virginia. The tobacco grower has successively taken from his fields the tobacco plant, root and branch. Mark the consequence; a curse has pursued him, his fields have ceased to produce, he has become impoverished, and at this moment vast tracts that have once been fertile, are now barren wastes.

If our farmers paid proper attention to their interests, there is scarcely one among us, who has not, in his immediate vicinity, or on his very farm, almost every requisite to grow the cerealia,—and instead of producing fifteen bushels of wheat to the acre, might obtain sixty. We all have

straw, hay, weeds, stalks, &c., which consist of oxygen, hydrogen, carbon, nitrogen, alkaline and earthy salts, all indispensable manures, yet they are all sold from our premises, except the weeds, which are permitted to grow, come to maturity, sow their seeds and waste. If you would grow a wheat crop on your ground continuously, all that is necessary is to return the straw. Thus you give to the land every chemical ingredient from potash to chlorine, that the ensuing crop requires, as the straw and grain contain by analysis precisely the same chemical ingredients—and like produces like.

Let every farmer accumulate his weeds, straw, refuse stalks, leaves, muck, swamp mud, sand clay, night soil, charcoal dust, coal ashes, the excrements of his horses, horned cattle, pigs and fowl, not neglecting the liquid manures in his yard—*under cover*—and when decomposed, and properly incorporated, he has a capital on which to commence his agricultural operations that will carry him through every difficulty. The liquids are, in nine cases out of ten, allowed to run over the yard, where it becomes putrid, loses its nitrogen, which passes off in the shape of ammonia—its salts are carried away by rain—and nearly all its valuable properties are evaporated by the atmosphere. Thus the ammonia and alkaline salts, the most valuable portion of the manure, and without which, neither plants nor seed can exist, are lost. It is the want of these substances that causes our lands to produce miserable crops, and sometimes entire sterility is the result.

A farmer should on no account sell his hay or straw,—if he does, his crops will decrease—and finally his land will cease to produce—his constant study should be to increase his manure heaps, by every means in his power, and to become acquainted with his soil chemically, which knowledge may soon be acquired. If your soil requires potash, use ashes. Soda, lime, and magnesia may be purchased—ammonia and hartshorn are the same thing. Nitric, muriatic and sulphuric acids are extensively sold in commerce. Phosphoric acid may likewise be purchased of the apothecary. All these substances are indispensable in a soil, to produce either the cerealia, cruciferous or leguminous plants. Buy them, mix them with three hundred times their weight of mould, and apply them to your plants—you will be astonished at the result. By this means I was enabled to raise large crops and heavy grains, long before the works of Sprengel, Johnston, Liebig, &c., were published.

Bear one thing in mind; all the manures you use to improve your soils and to become useful to plants as food, cannot be of the least service to them except in a liquid state—that is to say, if you present your growing crops with bones, fish, lime, potash, soda, muck, or compost from your stable yards. They are all dissolved by some process of nature before the plant can absorb them. That is the reason plants grow so much more rapidly, when liquid manure is used upon them, than when a dry composition is made use of.

Davy ineffectually tried the finest impalpable powder of charcoal upon plants, in hopes they would imbibe it, but it was fruitless. He found that no manure could be taken up by the roots of plants, unless water was present. The early Egyptian philosophers falsely asserted that water was the only food of plants. They probably came to that conclusion by noticing the magic fertilizing properties of the waters of the Nile, when it overflows its banks.

Veit says, plants are nourished only by sucking in the nutritious substance, in a fluid or gaseous form, out of the earth or air, by means of their roots or leaves. Nourishing substances must therefore be soluble in water; and if a substance is thus insoluble, it must first be dissolved by the agency of some other substance, and in its new combination becomes soluble in water, before it is to be considered as nourishment or manure.

When chemists speak of a rich soil, they mean one which contains a large quantity of humus or organic remains.

Humus, which according to Liebig, is the decayed fibre of wood, is characteri-

zed by Thaer as "a mould," not properly an earth, but a powdery substance, in a greater or less degree found in the soil. The fruitfulness of the soil depends on its proportions, as likewise it is the only thing in the soil, that gives nutriment to plants; it is the remains of vegetable and animal putrefaction—if dry, *black and powdery;* if moist, *it has a smooth, fatty feeling;* it is different according to the bodies out of which it is formed, but it has certain general peculiarities or properties in which it is essentially alike.

Humus is a form of organic power, a combination of carbon, hydrogen, nitrogen, and oxygen, and also in less quantities of sulphur, phosphorus and various salts, gives nourishment to organism; the more life there is, the more humus; and the more humus, the more life.

For examples in agriculture, we must look to the Chinese; they are known to be the best agriculturists in the world—the best and most scientific gardeners—and the best trainers of plants. Our inquiry would naturally be, what manure do they use? Is it the manure from horses? No. They are seldom used by them in agriculture. From stall fed cattle? No. The stall feeding of cattle is unknown to them. Human ordure? Yes. Why? Because man eats all varieties of food. The excrement of man contains every known requisite to the growth of plants.

The excrements of a man used as a manure can be made to produce a sufficient quantity of grain to support him.

Professor Liebig says in respect to the quantity of nitrogen contained in excrements, one hundred parts of the urine of a healthy man are equal to thirteen hundred parts of the fresh dung of a horse, and to six hundred parts of that of a cow. Hence it is evident, that it would be of much importance to agriculture, if none of the human urine were lost. The powerful effect of urine as a manure is well known in Flanders; but human excrements are considered invaluable by the Chinese, who are the oldest agricultural people we know. Indeed so much value is attached to their influence by these people, that laws of the State forbid that any of them should be thrown away, and reservoirs are placed in every house, in which they are collected with the greatest care. No other manure is used for their corn fields.

The following estimate I found in Johnson's Farmers' Encyclopedia, showing the waste of invaluable manures in large cities; he says that by carefully conducted experiments, and very accurate gaugings, it has been found, that the chief London sewers, convey daily into the Thames, about 115,000 tons of mixed drainage, consisting, on an average computation, of one part of solid and twenty-five parts absolutely fluid matters. Allowing one part in thirty of this immense mass to be composed of solid substances, then we have the large quantity of more than 3,800 tons of solid manure, daily poured into the river from London alone, consisting principally of excrements, root, and the debris of the London streets, which is chiefly carbonate of lime; thus allowing twenty tons of this manure as a dressing for an acre of ground, there is evidently a quantity of solid manure annually poured into the river, equal to fertilizing more than 50,000 acres of the poorest cultivated land! The quantity of food thus lost to the country by this heedless waste of manure is enormous, for only allowing one crop of wheat to be raised on these 50,000 acres, that would be equal to the maintenance of 150,000 persons. London is only one instance of this thoughtless waste of the agricultural riches of the soil of England. How is it in our own country, and even in our own city, are not the corporation of New York now constructing sewers through all the principal streets, leading directly to the Hudson, with a view of carrying to that great receptacle, substances that might, if saved, for agricultural purposes, help to support thousands?

The fertilizing liquid produced annually by our population, 400,000, would amply manure 60,000 acres of worn out land, and make it yield to the amount of four millions of dollars, to say nothing about anthracite coal ashes, soot, charcoal dust,

and the plaster taken from the walls of houses that are daily pulled down, which latter is a most valuable manure. I am informed that the Chinese will take down an old wall, and replace it with a new one, to obtain the old one as manure. All these substances, and a thousand others, that might be named, are daily wasted in our city. In different parts of Europe there is a substance now in use, to disinfect filth, called animal black, it renders inodorous any substance to which it may be applied. There is now in this city an agent from some European company, about arranging to disinfect cispools, and render the contents portable and inoffen sive. If such an arrangement can be made, our citizens, will enjoy a much purer atmosphere than they do at present, and health will be the consequence. When travelling in Switzerland and Germany, I uniformly found, all the best farmers had large reservoirs under their barns, into which they daily swept all the excrements of their cattle, which are always fed in stalls, they then poured into them six times the bulk of the manure in water; five reservoirs are employed by the wealthy farmers, each large enough to contain all the manure made in a week; they are each allowed to remain four weeks after being filled to ripen, by which time the whole becomes a uniform liquid mass; it is then pumped into large vessels, carried upon carts drawn by three pair of oxen to the field, and distributed in a form capable of being taken up at once by the plant.

A German agriculturist at Frankfort, informed me that all German farmers had admitted from time immemorial, that bull's blood and human urine were the most powerful of all the fertilizers known, and that if no other substance was used upon land, it would always produce wonderful results, as they contained (as has since been proved by analysis,) every ingredient requisite to produce growth in all plants. It is usual in Germany to plough it under immediately, to prevent waste by evaporation; before doing so they frequently add five bushels of salt to the acre, which they find productive of favorable results.

Professor Shubler, of Germany, tried the following experiment; he found a piece of soil without manure yielded three times the quantity of seed sown, and five times the quantity of seed sown, when dressed with old herbage, grass, leaves, &c., seven times when dressed with cow dung, nine times when dressed with pigeon's dung, ten times when dressed with horse dung, twelve times when dressed with human urine, twelve times when dressed with sheep's dung, fourteen times when dressed with human manure and urine or bullock's blood.

Thus you see, that of seven fertilizers, the liquid manures, urine and blood, were found to be decidedly the most efficacious. Human urine, in a fresh state, was found by Berzelius to contain the following substances: water, urea, sulphate of potassa, sulphate of soda, common salt, phosphate of soda, phosphate of ammonia, muriate of ammonia, lactate or acetate of ammonia, lactic or acetic acid, animal matter, soluble in alcohol, inseparable urea, earthy phosphate (earth of bones) with fluate of lime, uric acid, mucus of the bladder, urea (earth of flint.)

AGRICULTURAL SCHOOLS.

We are almost afraid to express the doubts we entertain of the success of any project that has for its object the establishment of an agricultural school, and yet this conviction is most reluctantly forced upon us; and truth, unwelcome as it may sometimes be, is never hurtful. We have seen attempt after attempt of this kind prove utterly fruitless, and we do not believe that it can be said that there is a single agricultural school in successful operation within the limits of the United States. We thought if the thing contained within itself the elements of success, they would have been developed in the circumstances under which Dr. Lee's school was established in the Western part of New York. Here is a rich and thickly populated country, a region exclusively agricultural and represented to us as uncommonly intelligent. In its midst a school is established under the auspices of two gentlemen, the one

the most practical and the other perhaps the most theoretical farmer in the Union, and yet we gather from a notice in the last number of the Genesee Farmer that this attempt has been attended with no better success than those that have preceded it, and if it has not already proved a failure it is most likely to end in such a result.

It may not be unprofitable to stop a moment and consider the cause of this universal failure. Why is it that thousands of young men resort to schools of law and medicine, whilst no pupils can be found for our agricultural institutions? The merchant goes through the ordeal of his clerkship, the mechanic serves his apprenticeship, but the farmer is neither an apprentice to the art, nor a student of the science of agriculture. Nor do we know, to speak candidly, that there is much to be gained by the establishment of agricultural schools. What is to be taught in them? As to the organic laws of vegetable production, they embrace so large a field and one so little explored, that we must be content to perform the part of discoverers for some time yet, before we attempt to play the part of teachers. The day may come, and probably will, when the laws of agriculture will be systematized, and when its votaries may stand to each other in the relation of pupil and professor; but that day is not yet, and we believe that there is no theoretical knowledge valuable to the practical farmer, that cannot be obtained easier and cheaper from works than from verbal instruction. Moreover, even if we had attained a knowledge of all the wonderful and complex laws which influence the principle of vegetation, would we propose to trouble the understanding of the mere farmer with them: what he wants is practical results, and when scientific men have arrived at them, but few have been as yet attained, they will find no difficulty in disseminating them without the use of professors or agricultural colleges.

But the *art* of agriculture is a different thing. If the science is one of the most noble and most profound, the manual operations that are required to carry it into practice are of the roughest and most laborious description. Geology, chemistry and botany are included in the one; hoeing, digging, and ploughing are embraced in the other: they will never be united in the same individuals; nor indeed is there any necessity that they should be; it is true, that the theory of combustion is intimately connected with fire-making, but we would as soon think of recommending the study of natural philosophy to every fire-maker as we would of requiring every cultivator of the soil to be profoundly skilled in the science of vegetable chemistry. But it does seem to us, that there is a knowledge more rare and more valuable to the agricultural community than even the scientific discoveries of Liebig: a knowledge which is not to be acquired from professors nor from books. It is a knowledge of system and of economy. It is a knowledge of the practice of rising early, working hard and constantly, and attending to the minutest details in person. The competition amongst agriculturists has brought the price of products so low that this kind of system has become absolutely necessary to the farmer's existence, unless he is content to reduce his expenditures one-half, which no man can or will do, of a sudden.

Our advice, then, to farmers and farmers' sons is, stay at home, eschew agricultural schools and agricultural professors, read books only which propose to keep you informed of practical results, learn the best mode of making and using (professors know nothing about them) a hoe, a plough and a spade; learn how an axe should be ground and a plough pointed; see that your hands do their duty, and do it in the best manner, strive to make good crops, and above all, (for in that you are most lacking,) endeavor to husband well your crops after they are made.

BEET ROOT BREAD.

A baker of Vienna has made a discovery, which, at the present moment, may prove of high importance—the use of beet root in making bread. Two loaves, one consisted of one-half, the other of five-eighths beet-root, the remainder being of wheat flour, were sent for the inspection of the Minister of Agriculture and of Commerce. The loaves were baked on the

30th of October, and on the 20th of November retained all the taste and appearance of a good household bread. The bread is made in the usual manner, only with less water and a little more salt.—The beet root must be grated at the moment of making use of it. The Austrian Minister has ordered different experiments to be made, which, however, it is easy for any person to do themselves.—*Selected.*

From the N. Y. Commercial Advertiser.

EXPERIMENT WITH WHEAT.

The American Agricultural Association held its monthly meeting on Wednesday evening. Hon. Luther Bradish presided. R. L. Pell, Esq., of Pelham, detailed an experiment in the cultivation of wheat, which appeared to us entirely new. He said that on the 4th of October, last year, he cleared the tops from a potato field, burnt them, and returned the ashes, with the view of sowing wheat. The seed was prepared thus: soaked four hours in brine that would buoy up an egg; then scalded with boiling hot salt water mixed with pearl ashes, then through a sieve distributed thinly over the barn floor, and a dry compost sifted on it, composed of the following substances: oyster shell lime, charcoal dust, ashes, brown sugar, salt Peruvian guano, silicate of potash, nitrate of soda, and sulphate of ammonia. The sun was permitted to shine upon it for about half an hour, when the articles became, as it were, chrystalized upon the grain. In this state it was sown at the rate of two and a half bushels to the acre, directly on the potato ground, from which the tops had been removed, and ploughed under to the depth of five inches, harrowed once, a bushel of timothy seed sown to the acre, and harrowed twice; at the expiration of fifteen days, the wheat was so far above ground as to be pronounced by a neighbor far in advance of his, which had been sown in the usual way on the first of September, thirty-four days earlier. A composition made by Mr. P., containing thirty different chemical substances, was spread broadcast over the field before the wheat came up, at an expense not exceeding three dollars. The yield per acre was somewhere about seventy bushels.

The flour made from this wheat, which weighed nearly sixty-five pounds to the bushel, received the first premium at the last Fair of the American Institute. The superiority of the flour was owing to the enormous amount of gluten it contained. Mr. P. read Dr. D. P. Gardner's analysis of the flour, which showed that it contained eighteen per cent. of gluten, after having been dried by an air pump over sulphuric acid. His manures were applied for the purpose of producing gluten.

BEAR GRASS.

We find the following in the "Southern Cultivator" with respect to a production that may become an important article of commerce to the Southern States. It promises not only to enlarge the narrow market of the agriculturist, but the manufactures dependant upon it, as those of cordage, matting, &c., are of that simple character admirably adapted to give employment to Southern labor. We believe the bear grass would grow as well in Eastern Virginia as in Georgia. Mr. Myerle, the writer of the letter, has long been celebrated for his skill and experience in the growth and management of American hemp.

WASHINGTON, Dec. 11, 1846.

Hon. G. W. Towns: Sir,—I take the liberty to draw your attention, and through you the attention of the farmers of Georgia to the importance of cultivating the "bear grass" plant. From this plant hemp can be made equal to manilla or sisal.—It is indigenous to the whole Southern States, hardy in its nature and easy to cultivate. The articles which it closely resembles, namely, manilla, sisal and jute, are now in great demand—and that demand increasing daily. For rivers, canals, and all internal purposes, it is found to be superior to any other cordage. From manilla, the following articles are produced: rope, bagging and fine fabrics equal, and for summer apparel, superior to linen—the same manufactures can be

made from the fibres of the "bear grass." The following extracts from letters will show the importance and value of the article:

"*Philadelphia, Oct.* 18, 1846.

"There is no doubt that this is of the same species as manilla and sisal, and has some resemblance to jute. There is no more desirable article to this country, than this species of hemp, and the consumption is daily increasing, as it is admirably calculated for canal, river, and other purposes, no tar being used, and the article floating. Manilla hemp is now worth $150 per ton, (2,240 pounds,) but has lately risen from $137 50 to $150."

"*Boston, Aug.* 7, 1846.

"Your favor of the 27th ultimo, with samples of hemp, came duly to hand; it is handsome hemp, and we think will make handsome cordage. Should you get enough out to have it tried properly, say one or two tons, we shall be pleased to make the experiment."

"*New York, Nov.* 7, 1846.

"Dear Sir,—We owe you many apologies for not sooner replying to your inquiries respecting samples of hemp or grass. The delay has been inadvertent. I hope you will excuse it. We certainly think that there is no question that the article will favorably compare with sisal hemp, and command a price nearly equal, and very possibly it may be preferred, from its finer texture. The great and increasing demand for sisal and manilla, both of which articles this sample so nearly resembles, we should consider as every inducement to the external production of it wherever it can be raised to advantage.

"We shall be happy to receive the samples you think it probable you may send us in the spring as an experiment, and will endeavor to promote your object to the extent of our power.

"P. S.—Prices paid for sisal, $135 per ton, (2,240 pounds.) Prices paid for manilla, $150 per ton. Sisal generally ranges from $125 to $135 per ton. Manilla generally ranges from $140 to $150."

"*Philadelphia, Nov.* 18, 1846.

"Sir,—I have a good opinion in regard to the cultivation of manilla hemp at the South, and should like to know where the sample came from you sent me a short time ago, in order, as far as in my power, to aid you in its growth."

Gov. R. K. Call's Remarks.—"The 'bear grass' is an evergreen, and in this climate, it continues to grow during the whole year, with the exception of a few weeks. It may be prepared for use at any season; and, if the planter has a sufficient crop, he might employ the whole year in its preparation without sustaining any loss from its depreciation or destruction by remaining too long on the ground. Six months' growth will give a plant of good size, and the hemp made from such a plant, will be as long, and possess quite as much strength, as that made from plants of greater age. But it will have fewer leaves, and will, therefore, produce less fibre. I think it a fair estimate that the 'bear grass,' after it is well rooted, and in good growth, will produce three full crops every twenty-four months. That it will require planting but once in an ordinary life time, and with but little cultivation will continue to produce its abundant crops of five or six tons per acre.

"Its preparation for market is as simple and expeditious as its production is abundant. This has been sufficiently tested. After boiling the leaves, and putting them up in small bundles of a convenient size for the purpose, I have passed them through an ordinary wooden sugar mill, dipping them in water at each passage, until the surplus matter has been removed, leaving the fibres perfectly cleansed, unimpaired and ready for use.

"From the success of this experiment, I am satisfied, that with a machinery and boilers, which would not cost more than one hundred and fifty dollars, that ten hands and a pair of mules, may prepare for use, at least five or six tons of hemp per day."

In concluding this letter, I will add, that the bear grass grows spontaneously in all the Southern States, and it can be culti-

vated by cutting its roots like the sweet potato. It is almost impossible to destroy it after it has taken root, and unlike cotton, it has no worm, its enemy, to destroy it. It is probable it may be produced from the seed. I almost fear that I have drawn too long upon your time on this subject; but the deep interest I take in the advancement of every thing which relates to the prosperity of the agricultural interest of the country, will, I hope, be a sufficient excuse. Should I be so fortunate as to succeed in drawing the attention of the farmers to the cultivation of this plant, I will feel that I will be sufficiently rewarded by its success.

You will see by the above extracts that the cultivation of the bear grass is no longer an experiment, but a practical result, and that its introduction will no doubt supersede manilla and sisal—an amount of which is imported into this country equal to *twelve thousand tons* annually, and the demand is greater than the consumption. The South may as well have this source of wealth as a foreign country; and should Georgia be the pioneer in its introduction, she will be the first not only to gain in wealth, but add another blessing to the working classes, as well as increased wealth to the rich planter, and introduce another incentive to industry.

I have the honor to be,
Most respectfully,
Your obedient servant,
DAVID MYERLE.

CURE FOR THE CATERPILLAR.

A gentleman at Galashiels, Scotland, has discovered that exhausted bark spread on the surface round the roots of gooseberry bushes, is an effectual remedy for caterpillar. A more simple and cheap remedy could scarcely be wished for. A cart loard of the bark, which costs about sixpence, is amply sufficient for the largest garden.

WHEAT REAPERS.

The success of M'Cormick and Hussey have brought various competitors into the field and there is every reason to believe that American ingenuity will soon supersede the laborious and imperfect work of the cradler. In the last number of the Western Farmer we find a notice of a new reaper, the invention of Mr. A. J. Cook, of Indiana, which is highly commended. Neither the cut nor the description afford a very clear idea of its construction.

TO OUR PATRONS.

We congratulate our subscribers on the new form in which the Planter for 1847 makes its appearance. This modification has cost us some trouble and has delayed the appearance of the first number in consequence of the new fixtures that were required by the change; but it is such an alteration as has been long desired, and will, we are sure, give universal satisfaction. We have increased the number of pages from twenty-four to thirty-two, and have put the paper in such form as to bring it within the law of newspaper postage, even according to the strict construction of the Postmaster General. The amount of postage charged upon the pamphlet form was a grievous burden, and the universal complaint led us to adopt the present arrangement.

Whenever occasion and opportunity permit we will embellish the paper with elegant and useful engravings, but the stereotyped representation of a fat sow or a patent bull, which has appeared before under another name, is a custom we think more honored in the breach than in the observance.

To make the Planter a worthy representative of the farming interest of the South we only ask the assistance of the farmers themselves. Give us good communications and we will trust to our subscription list. The February number will be issued as soon as it can be hastened through the press, and by the first of April we hope to make up the ground we have lost.

TO POSTMASTERS.

All orders for change of office or discontinuance of the paper, must specify the post office to which the paper has been sent.